USER GUIDE

NI PXI-1042 Series Power Supply Shuttle

The NI PXI-1042 Series power supply shuttle is a replacement part for the NI PXI-1042 Series chassis.

Introduction

To minimize downtime caused by a power-supply failure, the NI PXI-1042 Series chassis has a modular power supply shuttle. This power supply shuttle includes the chassis power supply, cooling fans, and fan-control circuitry. Key features of the power supply shuttle include:

- Universal AC input with automatic voltage and frequency ranging
- Over-current protection via push-reset circuit breaker
- Remote power monitoring and inhibit via a rear-panel connector
- Temperature-sensing module that can adjust fan speed based on air-intake temperature to minimize audible noise
- Circuitry to control a front-panel LED that indicates power supply failure

Unpacking

Carefully inspect the shipping container and the power supply shuttle for damage. Check for visible damage to the metal work. Check to make sure all handles, hardware, and switches are undamaged. Visually inspect the inside of the shuttle for any possible damage, debris, or detached components. If damage appears to have been caused during shipment, file a claim with the carrier. Retain the packing material for possible inspection and/or reshipment.

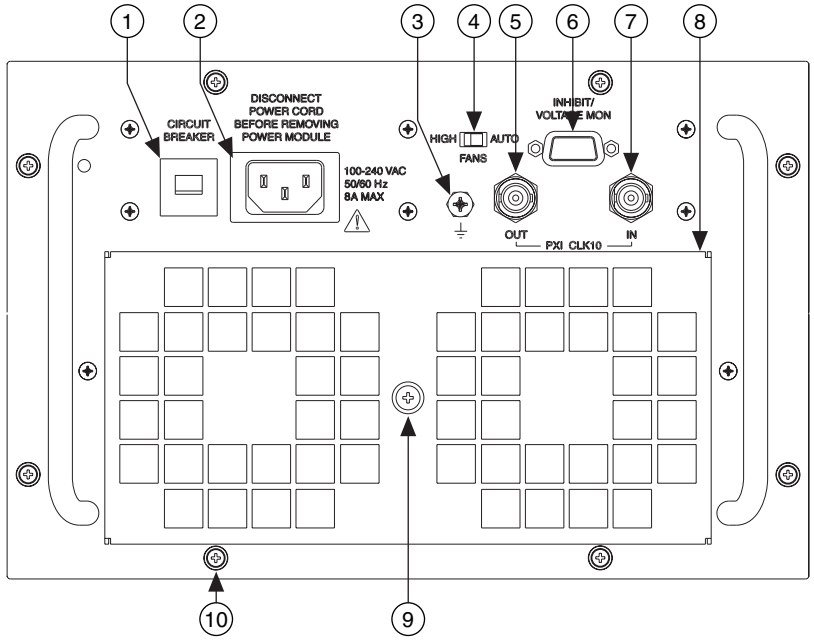
NATIONAL INSTRUMENTS™

What You Need to Get Started

- ❑ NI PXI-1042 Series chassis (the unit being repaired)
- ❑ NI PXI-1042 Series power supply shuttle
- ❑ *Read Me First: Safety and Radio-Frequency Interference*
- ❑ *NI PXI-1042 User Manual* (provided with the chassis; also available at `ni.com/support`)
- ❑ #1 Phillips screwdriver

Description

Refer to Figure 1 to locate user-accessible components on the power supply shuttle.



1	Circuit Breaker	6	Remote Inhibit and Voltage Monitoring Connector
2	Universal AC Inlet	7	PXI_CLK10 IN BNC
3	Chassis Grounding Screw	8	Filter Cover
4	Fan Speed Selector Switch	9	Filter Retainer Screw
5	PXI_CLK10 OUT BNC	10	Mounting Screws (8X)

Figure 1. NI PXI-1042 Series Power Supply Shuttle Rear Panel

Installation and Maintenance

The information in this section is for qualified service personnel only. Read the *Read Me First: Safety and Radio-Frequency Interference* document included with your kit before using the power supply shuttle.

Caution Many components within the NI PXI-1042 Series chassis under repair are susceptible to static discharge damage. Service the chassis only in a static-free environment. Observe standard handling precautions for static-sensitive devices while servicing the chassis. Always wear a grounded wrist strap, or equivalent, while servicing the chassis.

Caution Always disconnect the AC power cable before cleaning or servicing the chassis.

Caution Never connect the AC power cable to the power supply shuttle until you install it in an NI PXI-1042 Series chassis. Do not use, test, or configure the power supply shuttle outside of a chassis.

The power supply shuttle is a replacement part for the NI PXI-1042 Series chassis. The *NI PXI-1042 User Manual* contains all of the most up-to-date chassis service procedures, including removal and replacement of power supply shuttles. The chassis includes a hardcopy of the *NI PXI-1042 User Manual*; additionally, you can download a softcopy from `ni.com/support`.

Removal

Before attempting to replace the power supply shuttle, verify that there is adequate clearance behind the chassis. Set the power switch on the front panel to the Off (nonrecessed) position and disconnect the power cable from the power supply shuttle on the back of the chassis. Identify the eight captive mounting screws that attach the power supply shuttle to the chassis. Refer to Figure 1 for the mounting screw locations. Using a Phillips screwdriver, loosen the captive mounting screws. Pull on the two rear handles of the power supply shuttle to remove it from the back of the chassis.

Installation

Ensure that there is no visible damage to the new power supply shuttle. Verify that the housing and connector on the new power supply shuttle have no foreign material inside. Remove the protective cap on the PXI_CLK10 connector. Install the new power supply shuttle into the opening on the rear of the chassis. Tighten the eight captive mounting screws with a Phillips screwdriver.

Configuration

The fan-speed selector switch is on the rear panel of the power supply shuttle. Refer to Figure 1 to locate the fan-speed selector. Select HIGH for maximum cooling performance (recommended) or AUTO for quieter operation. When set to AUTO, air-intake temperature determines the fan speed.

Connecting Safety Ground

Caution The power supply shuttle is designed with a three-position NEMA 5-15 jack that connects the ground line to the chassis ground. To minimize shock hazard, make sure the electrical power outlet you use to power the chassis has an appropriate earth safety ground.

If your power outlet does not have an appropriate ground connection, you must connect the premise safety ground to the chassis grounding screw. Refer to Figure 1 to locate the chassis grounding screw. To connect the safety ground, complete the following steps:

1. Connect a 16 AWG (1.3 mm) wire to the chassis grounding screw using a grounding lug. The wire must have green insulation with a yellow stripe or must be noninsulated (bare).
2. Attach the opposite end of the wire to permanent earth ground using toothed washers or a toothed lug.

Specifications

AC Input

Input voltage range .....100 to 240 VAC

Operating voltage range[1] .....90 to 264 VAC

Input frequency.....50/60 Hz

Operating frequency range[1] .....47 to 63 Hz

Input current rating .....8 A

Over-current protection .....10 A circuit breaker

Line regulation

3.3 V .....<±0.2%

5 V .....<±0.1%

±12 V .....<±0.1%

[1] The operating range is guaranteed by design.

Efficiency ..... 70% typical

Power disconnect ..... The AC power cable provides main power disconnect. The chassis front-panel power switch causes the power supply to provide DC power to the CompactPCI/PXI backplane.

DC Output

DC current capacity (I_{MP})

Voltage	NI PXI-1042		NI PXI-1042Q
	0–50 °C	0–55 °C	0–40 °C
+3.3 V	20 A	18 A	20 A
+5 V	29 A	25 A	29 A
+12 V Peripheral slots	3.5 A	3.5 A	3.5 A
+12 V System slot	0.5 A	0.5 A	0.5 A
–12 V	2 A	2 A	2 A

Load regulation

Voltage	Load Regulation
+3.3 V	<5%
+12 V	<5%
+5 V	<5%
–12 V	<5%

Maximum ripple and noise (20 MHz bandwidth)

Voltage	Maximum Ripple and Noise
+3.3 V	50 mV_{pp}
+12 V	120 mV_{pp}
+5 V	50 mV_{pp}
–12 V	120 mV_{pp}

Over-current protection .....All outputs protected from short circuit and overload with automatic recovery

Over-voltage protection

3.3 V and 5 V.....Clamped at 20 to 30% above nominal output voltage

+12 V and –12 V .....Clamped at 26 to 29 V difference between +12 and –12 V outputs

Power supply shuttle MTTR.....Replacement in under 5 minutes

Compliance and Certifications

Safety

This product meets the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA 61010-1

Note For UL and other safety certifications, refer to the product label or the *Online Product Certification* section.

Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326 (IEC 61326): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions

Note For the standards applied to assess the EMC of this product, refer to the *Online Product Certification* section.

Note For EMC compliance, operate this product according to the documentation.

Online Product Certification

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for this product, visit `ni.com/certification`, search by model number or product line, and click the appropriate link in the Certification column.

CE Compliance CE

This product meets the essential requirements of applicable European Directives as follows:

- 2006/95/EC; Low-Voltage Directive (safety)
- 2004/108/EC; Electromagnetic Compatibility Directive (EMC)

Environmental Management

National Instruments is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial not only to the environment but also to NI customers.

For additional environmental information, refer to the *NI and the Environment* Web page at `ni.com/environment`. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

Waste Electrical and Electronic Equipment (WEEE)

EU Customers At the end of their life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers and National Instruments WEEE initiatives, visit `ni.com/environment/weee.htm`.

电子信息产品污染控制管理办法 （中国 RoHS）

中国客户 National Instruments 符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。
关于 National Instruments 中国 RoHS 合规性信息，请登录 `ni.com/environment/rohs_china`。
(For information about China RoHS compliance, go to `ni.com/environment/rohs_china`.)

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